

Impacting Acquisition:

Using “Bridge Cards” to ensure that the Right questions are asked by senior management

Human Centered Systems Engineering Group

NAVSEA Dahlgren, Virginia, USA



Acknowledgements

(Who REALLY did the work here?)

- Member, USN (Ret.), BCI Inc.
- Variety of SMEs, HFEs, SEs
- Member, BCI Inc.

Change Begins at the Top

- Human Factors Engineers don't make the final decisions
- Must influence Leadership to fly the Human Factors Flag
- Make alliances with friendly natives
- Demonstrate corporate advantages
- Institutionalize process



US Success Stories



- PEO (Strike)
 - ◆ Former PEO (DD 21) RADM Carnavale
 - ◆ Now RADM Hamilton



- PEO (Theater Surface Combatants)
 - ◆ RADM Member
 - ◆ Also Chief Engineer for the Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN-RDA CHENG)
 - ◆ RADM Member, USN (Ret.)

- A quick reference for commanding officers
- Adopted Name for Top Ten Questions a Program Manager can ask





Bridge Card

General:

- 1) How did you [will you] come up with the function allocation between the hardware/software (equipment/computer program) aspects of the system and the human operator?
- 2) How are you [will you] ensuring that all of the information is available to the decision-maker without burying him in data?
- 3a) Has this concept been presented to a fleet review team and if so what was their reaction?
- 3b) Where will you be setting up your prototype watchstations for human factors testing? Will it be readily accessible to the fleet reviewers and test participants?
- 4) What are the qualifications of your human factors team? When did they start working on this, and what impact have they had on your designs?
- 5) What additional training will be required for operators and maintainers for this system?



Bridge Card

Specific:

- 1) What analyses have you performed to ensure that these operators can really handle the workload your design will be placing on them?
- 2) What will the operator have to memorize to use this?
- 3) How do you handle operator error? It WILL happen.
- 4) Are these controls standardized with other systems used by the same operators?
- 5) Have you considered operator complaints with previous similar systems in this design, e.g., AEGIS Lessons Learned Program?

Acquisition Questions

- Bridge Card Concept Extended to Include Review of Acquisition Process
- Applicable questions for each Milestone
 - ◆ HF folded into other disciplines

Example of Bridge Card Question Applicability in System Acquisition

Program Information	Statutory	Regulatory DoD 5000.2-R	0	I	II	III	Prepared by	Approved*	Mandatory Format	Questions
Acquisition Decision Memorandum (ADM)		Part 5.2.1	X	X	X	X	DAB Exec. Secretary	MDA*	No	
Acquisition Program Baseline (APB)	10 USC 2435	Part 3.2.2		X	X	X	PM Component	MDA*	Yes	
Acquisition Strategy (AS)	Multiple	Part 3.3.		X	X	X	PM Component	MDA*	No	0-21; 1-3, 4, 5

Does it Work?

- Bridge Cards delivered in February
- Mad scramble commenced in March
- Three programs have contacted NAVSEA Dahlgren Human Factors directly thus far
- Program leadership (PEO TSC) asking the “right questions” at program reviews



Conclusion

- Change Begins at the Top
- Leadership Buy-in is Vital
- Get them Worried about Human Factors Issues
- Provide Quick, Usable Solutions (Bridge Cards)
- Know Your Acquisition/SE Process

EVERY Solution is Different

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